

SUPPORT FOR THE AMENDMENT

This Amendment amends the title; amends the specification; cancels Claim 4; amends Claims 1, 3, 7-8, 10-11 and 13-14; and adds new Claims 15-16. Support for the amendments is found in the specification and claims as originally filed. In particular, support for Claim 1 is found in the specification at least at page 4, line 16, and page 9, lines 34-35. Support for Claim 3 is found in Claims 1 and 4 and in the specification at least at page 9, lines 34-35. Support for Claims 10 and 13 is found in Claim 1 and in the specification at least at page 9, lines 34-35. Support for Claim 14 is found in Claim 1 and in the specification at least at page 4, line 16. Support for new Claim 15 is found in Claim 10. Support for new Claim 16 is found in Claim 9. No new matter would be introduced by entry of these amendments.

Upon entry of these amendments, Claims 1-3 and 5-16 will be pending in this application. Claims 1, 3, 10, 13 and 14 are independent.

REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

The present invention is based on the observation that a certain sub-population of polypropoxylates, which prior to the present invention have been used as carrier oils, have a pronounced intake system cleaning effect. In view of this observation, it is no longer necessary to add further conventional detergent additives as co-additives in order to prepare fuel compositions showing a sufficient intake system cleaning effect. This simplifies fuel preparation as it reduces the number of additives required for preparing ready-to-use fuel compositions.

Thomas, on the other hand, discloses a mixture used as a fuel and lubricant additive. Thomas' mixture combines a detergent component (A), a polymer component (B) and a carrier oil component (C). Carrier oil component (C) has some structural similarity to the polypropoxylate additives of the present invention. However, the carrier oil component (C) is used as a carrier oil only. Nowhere does Thomas disclose that the component (C) by itself has an intake system cleaning effect. On the contrary, Thomas discloses an improved intake valve deposit reducing effect only for a *combination* of components (A), (B) and (C). See Thomas at page 4, lines 28-30. Thomas fails to disclose an amount, having an intake system cleaning effect, of the recited propoxylate additive of the formula I in which n is an integer of from 14 to 18.

Furthermore, there is no reasonable expectation that Thomas would have led one to the claimed invention, because one would have had to choose between propoxylate and butoxylate polymers. In addition, one would have had to select the n=14-18 range from the broad definition given in Thomas. Furthermore, one would have had to select the specific definition for the residue R¹ found in the recited formula I. The examples in Thomas make use of a polybutoxylate polymer and not the recited propoxylates, providing further evidence that Thomas would have led the skilled artisan away from the present invention.

Any *prima facie* case of obviousness based on Thomas is rebutted by the results summarized in the specification at page 14, Table 1, which is reproduced below.

Table 1

Additive	Dose [mg/kg]	Intake valve deposits [mg] ¹⁾				
		Valves	1	2	3	4
Tridecanol x 10 Propylene oxide	400		13 (277)	2 (175)	11 (183)	58 (337)
Tridecanol x 15 Propylene oxide	400		4 (277)	0 (175)	1 (183)	0 (337)
Tridecanol x 20 Propylene oxide	400		17 (277)	0 (175)	0 (183)	22 (337)
Tridecanol x 25 Propylene oxide	400		144 (514)	34 (303)	305 (300)	41 (519)
Tridecanol x 30 Propylene oxide	400		160 (514)	2 (303)	28 (300)	86 (519)

¹⁾ Values in brackets: Deposits without addition of additives; the different values are due to differences in the unleaded European premium grade used

Table 1 shows that fuels including the specific propoxylate additive of the claimed invention show a superior intake valve cleaning effect, even when *no additional* conventional detergent additive is added to the fuel. In contrast, nothing in Thomas suggests that anything but a *combination* of conventional detergent additives can provide a suitable intake valve cleaning effect. Because Thomas fails to suggest the improved intake system cleaning effect achieved through the use of only an effective amount of the recited propoxylate additive, any *prima facie* case of obviousness based on Thomas is rebutted.

The rejections over Thomas should be withdrawn.

Claims 1-8 and 10-14 are rejected under 35 U.S.C. § 102(b) over EP 0878532A1 ("Daly"). As with Thomas above, Daly fails to suggest the recited propoxylate additives of formula I nor their specific use as a fuel additive showing, *by itself*, an intake system cleaning effect. There is no reasonable expectation that Daly would have led one to the recited

propoxylate additive of formula I, because the one reading Daly would have had to purposefully select the type of alkylene oxide component, the number of alkylene oxide monomers, as well as the type of residue R¹. Moreover, Daly discloses an intake valve cleaning effect only for *combinations* of a polyether alcohol component (i) and a hydrocarbylphenol (ii) having 1 to 3 hydrocarbyl groups of a molecular weight of 250 to about 6,000. Daly at Abstract. Daly fails to disclose all of the limitations of the claimed invention, and therefore the rejection over Daly should be withdrawn.

Claims 1-2 and 9 are rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 3,901,665 ("Polss"). However, Polss discloses *combinations* of (A) polymers of C₃-C₄ olefins; and (B) polyoxyalkylene compounds (i.e., propoxylates). Polss at Abstract. Polss discloses examples in which the propoxylate contains 6-9 propoxylate moieties. Polss at column 12, lines 35-43. However, Polss fails to exemplify the recited propoxylate additive of the formula I in which n is an integer from 14-18. As stated in Polss' Claim 1, Polss propoxylate additive is used in *combination* with specific isobutylenes to achieve anti-icing behavior and carburetor detergency. However, Polss fails to suggest the intake system cleaning effect observed according to the present invention using *only* an effective amount of a specific sub-population of polypropoxylates. Because Polss fails to suggest the claimed invention, the rejection over Polss should be withdrawn.

Claims 1-3, 5-6, 10 and 13-14 are rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 5,006,130 ("Aiello"). Aiello discloses fuel compositions comprising a *combination* of additives (a) and (b). Group (b) comprises five different types of additives (i) to (v). While additives of type (i) to (v) show some structural similarity to the polypropoxylate compound of the present invention, the specific polypropoxylate additive of the present invention, which, *by itself*, exhibits an intake system cleaning effect, is not disclosed in Aiello. There is

no reasonable expectation that Aiello would have led the skilled artisan to the claimed invention, because one reading Aiello would have had to select the type of alkylene oxide group, the number of alkaline oxide moieties, and the residues R₁ and R₃ of the compounds disclosed in Aiello at Claim 1. Moreover, Aiello states at column 1, lines 41-46, that compound (B) is preferably compound b(iv), which helps to prevent *low temperature intake valve sticking*. This type of effect is completely different than the intake system cleaning effect observed for the present invention. According to the present invention, the cleaning effect is observed in and around the intake valves and the fuel injector. On the other hand, valve sticking affects the movements of the intake valve stem within the intake valve stem guide. Additive components having a high boiling temperature may reach the valve stem guide and may negatively affect the starting of the motor as the compression ratio required for ignition may not be reached. Thus, the additives of Aiello have to solve a different technical problem than that faced by the propoxylate additive of the present invention. Because Aiello is directed to a different technical problem than the present invention, and Aiello fails to disclose the specific propoxylate additive of the claimed invention, the rejection over Aiello should be withdrawn.

The disclosure is objected to. To obviate the objection, in the title and in the specification at the bottom of page 12 "propoxilate" is replaced with --propoxylate--. Thus, the objection to the disclosure should be withdrawn. Applicants respectfully request reconsideration and withdrawal of the objection.

Claim 13 is objected to. To obviate the objection, in Claim 13 "addive" is replaced with --additive--. Thus, the objection to Claim 13 should be withdrawn. Applicants respectfully request reconsideration and withdrawal of the objection.

Claims 3-14 are rejected under 35 U.S.C. § 112, second paragraph. To obviate this rejection, Claims 3, 10, 13 and 14 are rewritten in independent form and Claim 14 is rewritten as a method claim. Applicants submit that the claims meet the requirements of 35 U.S.C. § 112, second paragraph. Therefore, the rejection of Claims 3-14 under 35 U.S.C. § 112, second paragraph, should be withdrawn. Applicants respectfully request reconsideration and withdrawal of the rejection.

Claim 14 is rejected under 35 U.S.C. § 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process. To obviate this rejection, Claim 14 is rewritten as a method claim. Applicants submit that Claim 14 meets the requirements of 35 U.S.C. § 101. Therefore the rejection under 35 U.S.C. § 101 should be withdrawn. Applicants respectfully request reconsideration and withdrawal of the rejection.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

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MARKED-UP COPY OF AMENDMENTS

IN RE APPLICATION OF :
WOLFGANG GUNTHER ET AL : EXAMINER: MEDLEY, MARGARET
SERIAL NO: 09/720,257 :
FILED: JANUARY 9, 2001 : GROUP ART UNIT: 1714
FOR: FUEL COMPOSITIONS
CONTAINING PROPOXYLATE

AMENDMENT

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

In response to the Office Action dated March 14, 2002, the period for response having been extended to September 14, 2002, by a petition for extension of time filed herewith, please amend the application identified above as follows (marked-up copy of amendments attached):

IN THE TITLE

Please amend the title as follows:

(Amended) FUEL COMPOSITIONS CONTAINING [PROPOXILATE]

PROPOXYLATE

IN THE SPECIFICATION

Please amend the specification as follows:

Insert at page 1, between lines 3 and 4, the following:

--BACKGROUND OF THE INVENTION

1. FIELD OF THE INVENTION--.

Insert at page 1, between lines 6 and 7, the following:

--2. DESCRIPTION OF THE BACKGROUND--.

Insert at page 3, between lines 18 and 19, the following:

--SUMMARY OF THE INVENTION--.

Insert at page 3, between lines 44 and 45, the following:

--DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS--.

Amend the paragraph at page 12, line 43 to page 13, line 2 as follows:

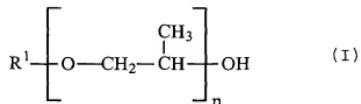
(Amended) Examples of suitable additive combinations for fuels are combinations of at least one [propoxilate] propoxylate as defined in formula I above, at least one detergent additive as defined, for example, in formula II above, at least one lubricity additive as defined above and/or, if required, at least one corrosion inhibitor as defined above.

IN THE CLAIMS

Please cancel Claim 4 without prejudice to or disclaimer of the subject matter therein.

Please amend Claims 1, 3, 7-8, 10-11 and 13-14 as follows:

1. (Amended) A fuel composition for internal combustion engines, comprising a principle amount of a liquid hydrocarbon fuel and an amount, which has [a] an intake system cleaning effect, of at least one propoxylate additive of the formula I



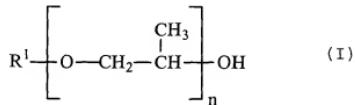
where

n is an integer of from [10] 14 to [20] 18 and

R^1 is straight-chain or branched C_8 - C_{18} -alkyl or C_8 - C_{18} -alkenyl.

3. (Amended) A fuel composition for internal combustion engines, containing a principle amount of a liquid hydrocarbon fuel, comprising an amount, which has [a] an intake system cleaning effect, of an additive combination comprising

i) at least one propoxylate additive of the formula I [as claimed in claim 1]



where

n is an integer of from 14 to 18 and

R^1 is straight-chain or branched $\text{C}_8\text{-C}_{18}$ -alkyl or $\text{C}_8\text{-C}_{18}$ -alkenyl;

ii) at least one detergent additive, selected from a polyalkylamine additive of the formula II



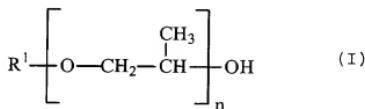
where R^2 is a straight-chain or branched polyalkyl radical having a number average molecular weight of from about 500 to about 5000;

if required in combination with at least one lubricity additive.

7. (Amended) A fuel composition as claimed in claim [4] 3, comprising at least one polyalkylamine additive of the formula II, where R^2 is a radical derived from identical or different $\text{C}_2\text{-C}_{30}$ -alkenes.

8. (Amended) A fuel composition as claimed in claim [4] 3, which contains, as an additive of the formula II, at least one polyisobutlenamine having a number average molecular weight of from 800 to 1500.

10. (Amended) A fuel additive mixture which contains, as intake valve cleaner component, at least one propoxylate [according to the definition in claim 1,] additive of the formula I



where

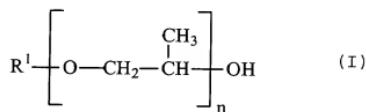
n is an integer of from 14 to 18 and

R^1 is straight-chain or branched $\text{C}_8\text{-}\text{C}_{18}$ -alkyl or $\text{C}_8\text{-}\text{C}_{18}$ -alkenyl,

if required in combination with at least one detergent additive and, if required, together with further conventional fuel additives.

11. (Amended) A fuel additive mixture as claimed in claim 10, [which] further containing a polyalkylamine, wherein the fuel additive mixture contains the at least one propoxylate additive and the polyalkylamine in a molar ratio of from about 1:10 to 10:1.

13. A fuel additive mixture [as claimed in claim 10] formulated as [a additive] an additive concentrate, comprising as an intake valve cleaner component at least one propoxylate additive of the formula I



where

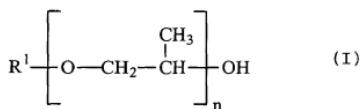
n is an integer of from 14 to 18 and

R¹ is straight-chain or branched C₈-C₁₈-alkyl or C₈-C₁₈-alkenyl,

if required in combination with at least one detergent additive and, if required,
together with further conventional fuel additives.

14. (Amended) [The use of at least one propoxylate according to the definition in claim 1, if required in combination with at least one detergent additive, as an intake valve cleaner additive for] A method of improving the intake system cleaning effect of a fuel [compositions] composition for internal combustion engines, the method comprising providing the fuel composition with an effective amount of a propoxylate additive of formula

I



where

n is an integer of from 10 to 20 and

R¹ is straight-chain or branched C₈-C₁₈-alkyl or C₈-C₁₈-alkenyl.

Please add new Claims 15-16 as follows:

--15. (New) The method of claim 14, wherein the propoxylate additive is provided in combination with at least one detergent additive.

16. (New) A fuel composition as claimed in claim 3, which comprises at least one additive of the formula I, where n is the integer of 15 and R¹ is straight-chain or branched C₁₃-alkyl.--